

AMENDMENT TO THE CLAIMS

Please replace the claims with the following complete listing of claims:

Claim 1. (*Currently Amended*) A protective article for a joint of a person's body, said article comprising:

a rigid frame adapted to cover the joint, joint;

said rigid frame ~~having a flexibility to allow~~ comprising:

means for allowing bending of the protective article and bending of the joint along at least one bending direction through a predetermined angle of bending, said rigid frame means comprising at least one bending zone between opposed ends of the frame, said bending zone including having at least one abutment with opposed edges, said opposed edges being spaced apart a predetermined amount in a first and unbent position of the protective article, and spaced apart by an amount less than said predetermined amount in a second and bent position of the protective article;

in said second and bent position of the protective article, said abutment of said means for allowing bending comprising means for limiting bending of the frame and limiting bending of the joint along said bending direction at [[a]] said predetermined angle of bending, bending;

said rigid frame having a rigidity of a magnitude to avoid hyperflexion of the joint beyond said predetermined angle of bending while the protective article is in said second and bent position.

Claim 2. (*Previously Presented*) A protective article according to claim 1, wherein:

said at least one abutment of the bending zone includes at least one notch substantially perpendicular to a bending plane; and

the notch is beveled to become closed for said predetermined bending angle so as to constitute said abutment to limit said bending of said frame.

Claim 3. (*Previously Presented*) A protective article according to claim 1, further comprising:

a flexible and substantially inextensible membrane, said frame being fixed on the membrane against movement along the membrane, the membrane being located on a side of the joint.

Claim 4. (*Currently Amended*) A protective article according to claim 2, wherein:

said bending zone includes an insert constituted of a compressible material positioned in said beveled notch.

Claim 5. (*Currently Amended*) A protective article according to claim 2, wherein:

said rigid frame is extended on opposite sides ends of the bending zone by respective supports; and

said bending zone has a thickness greater than a thickness of either of said supports.

Claim 6. (*Previously Presented*) A protective article according to claim 5, further comprising:

an envelope for enveloping the joint, said rigid frame, including said supports, being detachably positioned upon said envelope to allow the protective article to be detached from said envelope to allow the person to wear the envelope without having the protective article positioned thereupon; and

wherein at least one of said supports cooperates with a shock-absorbing element affixed to said envelope for improving control of the bending by compression in response to engagement between said rigid frame and said shock-absorbing element during said bending.

Claim 7. (*Previously Presented*) A protective article according to claim 6, wherein:

 said shock-absorbing element is positioned in a pocket affixed to said envelope; and

 a portion of said rigid frame extends into said pocket for said engagement.

Claim 8. (*Previously Presented*) A boot incorporating a protective article according to claim 1, wherein:

 said rigid frame is positioned, in an area of an ankle of a foot, on a front surface of the foot.

Claim 9. (*Previously Presented*) An assembly for binding a foot to a sports apparatus incorporating the protective article according to claim 1, wherein:

 said rigid frame is positioned, in an area of an ankle of a foot, on a front surface of the foot.

Claim 10. (*Withdrawn*) A glove incorporating the protective article according to claim 1, wherein:

 said rigid frame is positioned, at an area of a wrist of a hand, on a top of the hand.

Claim 11. (*Withdrawn*) A protective article according to claim 1, wherein:

 said rigid frame is positioned, in an area of a knee, on a front surface of the leg.

Claim 12. (*Withdrawn*) A protective article according to claim 1, wherein:

 said rigid frame is positioned on a spine and especially in an area of the neck,
on the back.

Claim 13. (*Previously Presented*) A boot according to claim 8, wherein:

 the boot includes a boot-tightening means, and wherein said rigid frame
includes at least one cooperating mechanism complementary of said boot-tightening
means.

Claim 14. (*Previously Presented*) A boot according to claim 8, wherein:

 the boot includes a shell supported on a sole; and
 the rigid frame includes a front support fixed on said shell over an instep area.

Claim 15. (*Previously Presented*) A boot according to claim 14, wherein:

 said shell includes a recess in an area for accommodating toes of a wearer.

Claim 16. (*Previously Presented*) A protective article according to claim 1, wherein:

 said predetermined angle, for an ankle, has a value comprised between +30°
and +45°.

Claim 17. (*Previously Presented*) A protective article according to claim 5, wherein:

 said bending zone is narrower than said supports.

Claim 18. (*Previously Presented*) A protective article according to claim 1, wherein:

 the frame is fixed on a flexible and substantially inextensible membrane
against movement along the membrane.

Claim 19. (Currently Amended) A sports apparatus comprising:

an envelope adapted to be worn by a person by being placed over a joint of the person;

a protective article for protecting the joint from hyper-flexion, said protective article comprising a frame detachably mounted with respect to said envelope to allow the person to wear the envelope without the protective article;

the frame extending length-wise along a bending plane between a first end and a second end;

said frame having at least one bending zone between said first and second ends, and first and second support areas on opposite sides ends of said bending zone;

said frame being more rigid, at least in said bending zone, than said envelope;

said bending zone having a flexibility adapted to allow bending of the frame in a bending direction within said bending plane through a range of bending during use of the sports apparatus between an initial position of the frame and a maximum bent position of the frame;

said frame further comprising at least one abutment comprising at least one beveled notch between a pair of opposed edges within said bending zone, said pair of opposed edges being spaced apart a widest extent in said initial position of the frame, said pair of opposed edges being movable relative to each other in said bending direction from said initial positions position of the frame to said maximum bent position of the frame, relative to each other to limiting positions in which said pair of opposed edges are not being further movable in said bending direction to thereby define a maximum bending of the frame and the joint at an end of said range of bending in said bending direction;

said frame having a rigidity, at least in said bending zone, sufficient to prevent said bending of said frame at said bending zone beyond said range of bending during use of the sports apparatus and to avoid hyper-flexion of the joint.

Claim 20. (*Previously Presented*) A sports apparatus according to claim 19, wherein:

said at least said one abutment comprises a notch extending substantially perpendicular to said bending plane;

at a beginning of said range of bending said notch is open, and at an end of said range of bending said notch is closed.

Claim 21. (*Previously Presented*) A sports apparatus according to claim 19, wherein:

said at least said one abutment comprises a notch having abutment surfaces extending substantially perpendicular to said bending plane;

said abutment surfaces of said abutment are not engaged at a beginning of said range of bending, and said abutment surfaces of said abutment abut at an end of said range of bending.

Claim 22. (*Previously Presented*) A sports apparatus according to claim 19, wherein:

said at least said one abutment comprises a notch extending substantially perpendicular to said bending plane;

a compressible insert is positioned within said notch, said insert being fully compressed at an end of said range of bending.

Claim 23. (*Previously Presented*) A sports apparatus according to claim 19, wherein:

said abutment comprises a notch, said notch not extending entirely through said frame.

Claim 24. (*Canceled*)

Claim 25. (*Previously Presented*) A sports apparatus according to claim 19, further comprising:

a bendable and substantially inextensible base;
said frame being fixed against sliding movement along said base.

Claim 26. (*Previously Presented*) A sports apparatus according to claim 19, wherein:

said bending zone has a thickness greater than a thickness of either of said support areas of said frame.

Claim 27. (*Previously Presented*) A sports apparatus according to claim 19, further comprising:

a shock-absorbing element positioned for engagement with said frame, said shock-absorbing element being compressible during bending of said frame.

Claim 28. (*Previously Presented*) A sports apparatus according to claim 27, further comprising:

a pocket;
said shock-absorbing element being positioned within said pocket.

Claim 29. (*Previously Presented*) A sports apparatus according to claim 19, wherein:

the protective article is adapted to protect an ankle against hyper-flexion; and said range of bending has an end value at said maximum bent position no greater than between 30° to 45° from a beginning value at said initial position, said beginning value corresponding to a said pair of opposed edges of said at least one abutment being at said initial positions relative to each other position of the frame.

Claim 30. (*Previously Presented*) A boot comprising:

an upper having a high portion and a low portion, the high portion adapted to extend higher than an ankle of a wearer and the low portion adapted to extend along an instep of the wearer;

a frame comprising a tibia support, an instep support, and a bending zone between the tibia and instep supports, said frame being detachable from the boot to allow the wearer to wear and to use the boot without the frame;

said bending zone of said frame having a flexibility adapted to allow bending of said tibia support in a bending direction relative to said instep support within a bending plane through a range of bending, said range of bending comprises an angle of movement of no greater than 45°;

said frame further comprising at least one abutment comprising at least one beveled notch between a pair of abutting edges within said bending zone, said pair of opposed edges being movable in said bending direction from initial positions relative to each other to limiting positions in which said pair of opposed edges are not further movable in said bending direction to thereby define a maximum bending of the frame at an end of said range of bending in said bending direction;

said frame having a rigidity, at least in said bending zone, sufficient to prevent said bending of said frame at said bending zone beyond said range of bending during use of the boot when said pair of opposed edges are in their limiting positions.

Claim 31. (*Currently Amended*) A boot according to claim 30, wherein:

said at least said one abutment comprises a beveled notch extending extends substantially perpendicular to said bending plane;

at a beginning of said range of bending said notch is open, and at an end of said range of bending said notch is closed.

Claim 32. (*Currently Amended*) A boot according to claim 30, wherein:

said at least said one abutment comprises a notch having beveled notch has abutment surfaces extending substantially perpendicular to said bending plane;

said abutment surfaces of said abutment notch are not engaged at a beginning of said range of bending, and said abutment surfaces of said abutment notch abut at an end of said range of bending.

Claim 33. (*Previously Presented*) A boot according to claim 30, wherein:

said at least said one abutment comprises a beveled notch extending extends substantially perpendicular to said bending plane;

a compressible insert is positioned within said notch, said insert being fully compressed at an end of said range of bending.

Claim 34. (*Previously Presented*) A boot according to claim 30, wherein:

said notch does not extend entirely through said frame.

Claim 35. (*Previously Presented*) A boot according to claim 30, wherein:

said frame is more rigid than said upper.

Claim 36. (*Previously Presented*) A boot according to claim 30, further comprising:

a bendable and substantially inextensible base;
said frame being fixed against sliding movement along said base.

Claim 37. (*Previously Presented*) A boot according to claim 30, wherein:

said bending zone has a thickness greater than a thickness of either of said supports of said frame.

Claim 38. (*Previously Presented*) A boot according to claim 30, further comprising:

a shock-absorbing element positioned for engagement with said frame, said shock-absorbing element being compressible during bending of said frame.

Claim 39. (*Previously Presented*) A boot according to claim 38, further comprising:

a pocket;
said shock-absorbing element being positioned within said pocket.

Claim 40. (*Previously Presented*) A boot according to claim 30, wherein:

said upper comprises a tongue; and
said frame is fixed to said tongue.

Claim 41. (*New*) A protective article according to claim 1, wherein:

said rigid frame is made of a material defining a continuous outer periphery along a length and width of the protective article.

Claim 42. (*New*) A sports apparatus according to claim 19, wherein:

said frame is made of a material defining a continuous outer periphery along a length and width of the protective article.

Claim 43. (New) A boot according to claim 30, wherein:

 said frame is made of a material defining a continuous outer periphery along a length and width of said frame.

Claim 44. (New) A protective article according to claim 2, wherein:

 said at least one notch comprises a plurality of notches spaced apart in said bending zone, said limit of said bending of said frame being caused by an accumulation of bendings at each of said plurality of spaced apart notches.

Claim 45. (New) A sports apparatus according to claim 19, wherein:

 said at least one beveled notch comprises a plurality of beveled notches spaced apart length-wise of said frame along bending zone, said maximum bent position of said frame being determined as an accumulation of bendings at each of said plurality of spaced apart notches.

Claim 46. (New) A boot according to claim 30, wherein:

 said at least one beveled notch comprises a plurality of beveled notches spaced apart in a direction length-wise of said frame along bending zone, said maximum bending of said frame being determined as an accumulation of bendings at each of said plurality of spaced apart notches.

Claim 47. (New) A boot comprising:

 an upper having a high portion and a low portion, the high portion adapted to extend higher than an ankle of a wearer and the low portion adapted to extend along an instep of the wearer;

 a frame comprising a tibia support, an instep support, and a bending zone

between the tibia and instep supports, said frame being detachable from the boot to allow the wearer to wear and to use the boot without the frame, said bending zone having a thickness greater than a thickness of both of said supports of said frame;

a flexible and substantially inextensible membrane, said frame being fixed on the membrane against movement along the membrane;

said bending zone of said frame having a flexibility adapted to allow bending of said tibia support in a bending direction relative to said instep support within a bending plane through a range of bending, said range of bending comprises an angle of movement of no greater than 45°;

said frame further comprising at least one abutment comprising a pair of opposed edges within said bending zone, said pair of opposed edges being movable in said bending direction from initial positions relative to each other to limiting positions in which said pair of opposed edges are not further movable in said bending direction to thereby define a maximum bending of the frame at an end of said range of bending in said bending direction;

said at least said one abutment comprises a notch extending substantially perpendicular to said bending plane, said notch not extending entirely through said frame;

a compressible insert is positioned within said notch, said insert being fully compressed at an end of said range of bending;

said frame having a rigidity, at least in said bending zone, sufficient to prevent said bending of said frame at said bending zone beyond said range of bending during use of the boot when said pair of opposed edges are in their limiting positions.